

CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 137/MP/2012

Coram:

**Dr. Pramod Deo, Chairperson
Shri S.Jayaraman, Member
Shri V.S.Verma, Member
Shri M.Deena Dayalan, Member**

DATE OF HEARING: 28.6.2012

DATE OF ORDER: 25.9.2012

In the matter of

Application for putting and continuing the Restricted Governor Mode of Operation in power plants of Hasdeo Thermal Power Station, Korba (W) and Hasdeo Bango Hydel Station, Machadoli.

And

In the matter of

Chhattisgarh State Power Generation Company Ltd. **...Petitioner**

Vs

Western Regional Load Despatch Centre, Mumbai **...Respondent**

Following were present:

1. Shri Pankaj Kolay, CSPGCL
2. Shri C.S.Bobadey, WRLDC
3. Shri Rajiv Porwal, NRLDC
4. Miss Joyti Prasad, NRLDC

ORDER

This petition has been filed by the Chhattisgarh State Power Generation Company Ltd, for extension of time for putting the generators of Hasdeo Thermal Power Station (HTPS) in Restricted Governor Mode of Operation (RGMO) up to year 2014-15 and for permission to run Hasdeo Bango Hydel



Power Station (HBHPS) on Free Governor Mode of Operation till commissioning of new software based EHG system, under Regulation 5.2 (f) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (hereinafter referred "Grid Code").

Background

2. Regulation 5.2.(f) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (hereinafter referred "Grid Code") provides as under:-

“Governor Action

(i) Following Thermal and hydro (except those with up to three hours pondage) generating units shall be operated under restricted governor mode of operation with effect from the date given below:

(a) Thermal generating units of 200 MW and above,

(1) Software based Electro Hydraulic Governor (EHG) system : 1.8.2010

(2) Hardware based EHG system: 1.8.2010

(b) Hydro units of 10 MW and above: 1.8.2010

(ii) The restricted governor mode of operation shall essentially have the following features:

(a) There should not be any reduction in generation in case of improvement in grid frequency below 50.2 Hz. (for example if grid frequency changes from 49.3 to 49.4 Hz. then there shall not be any reduction in generation). Whereas for any fall in grid frequency, generation from the unit should increase by 5% limited to 105 % of the MCR of the unit subject to machine capability.

(b) Ripple filter of +/- 0.03 Hz. shall be provided so that small changes in frequency are ignored for load correction, in order to prevent governor hunting.

(c) If any of these generating units is required to be operated without its governor in operation as specified above, the RLDC shall be immediately advised about the reason and duration of such operation. All governors shall have a droop setting of between 3% and 6%.



(d) After stabilisation of frequency around 50 Hz, the CERC may review the above provision regarding the restricted governor mode of operation and free governor mode of operation may be introduced.

(iii) All other generating units including the pondage up to 3 hours Gas turbine/Combined Cycle Power Plants, wind and solar generators and Nuclear Power Stations shall be exempted from Sections 5.2 (f), 5.2 (g), 5.2 (h) and ,5.2(i) till the Commission reviews the situation."

3. Since the above provisions were not complied with by the generators by the stipulated dates, the Commission vide order dated 4.10.2011 in *Suo-motu* Petition No. 191/2011 observed as under:

"4. All the respondents are directed to explain by 25.10.2011 the reasons for not switching over to the restricted governor mode of operation and to show cause as to why appropriate action under the Electricity Act, 2003 should not be initiated against the respondents for non-compliance of the provisions of the Grid Code."

4. In the backdrop of the above, we now examine the prayer of the petitioner, in the subsequent paragraphs.

5. The petitioner has submitted that as per Regulation 5 (f) of the Grid Code and order dated 4.10.2011 in *Suo-motu* Petition No. 191/2011 both HTPS, Korba and HBHPS, Machadoli are qualified to participate for RGMO and are to be put into RGMO operation. The petitioner has further submitted that even though all possible efforts have been made, presently they are not in a position to put the HTPS, Korba and HBHPS, Machadoli in RGMO mode due to the following constraints:

(a) Hasdeo Thermal Power Station (HTPS) (4X210 mw), Korba (W)

(i) All KWU, Germany T-G sets are equipped with both Electro



hydraulic and Hydraulic Governors. The control system for Electro Hydraulic Governors is manufactured by M/s Siemens, Germany, which comprises of ISKAMATIC A, ISKAMATIC B and TELEPERM C type of electric modules and is quite old. Earlier, a few unexplained trippings have occurred due to abrupt closing of valves and tripping analysis clearly indicated that electro hydraulic governor malfunction was the cause for closing of control valves;

(ii) In order to avoid any further spurious tripping on any station, all stations have been put into hydraulic governor mode since last one year. A hydraulic governor is an inherent and integral part of the turbine control and it cannot be kept out of service. The droop is of 7% in these governors with no dead band;

(iii) The original equipment supplier, BHEL has expressed its inability either to repair or to supply the electronic cards, on the ground that existing control system is now obsolete;

(iv) For Unit 2 and 4 of the station, M/s Taylor India Ltd. (a consortium of ABB-Kent-Taylor) which supplied and commissioned the existing control system, has since closed down its operations. At present, for the control system, very limited spares are available and

(v) The boiler controls are not running in Auto mode in any of the HTPS



units and coordinated master control is not provided in both types of automatic control systems.

B. Hasdeo Bango Hydel Power Station (HBHPS), Machadoli (3x40 MW)

(i) All stations are equipped with Type G40 electro hydraulic governor supplied by M/s BHEL, and running as a primary reserve. The frequency influence always remain switched on for these governors. Therefore, these units are running in FGMO. A manual intervention to modulate unit load is available at any moment of time.; and

(ii) To convert from FGMO to RGMO, the OEM, M/s BHEL has suggested installing a new software based control system as RGMO is not feasible with existing control system.

6. The petitioner has submitted that as the HTPS plant is now more than 25 years old, it has proposed a major renovation and modernization plan for life extension on these units. The Chhattisgarh State Electricity Regulatory Commission has agreed in-principle to its renovation and modernization scheme. With regard to HBHPS, Machadoli plant, with a view to procuring software based control system, an offer received from M/s BHEL is under process and is likely to be finalized within a short period.

7. Considering the submission of the petitioner and the documents on record, we are of the view that the steps taken by the petitioner for implementation of the RGMO in its units of the generating stations are belated.



However, considering the difficulty faced by the petitioner, we are not inclined to take any action against the petitioner for delay in implementation of RGMO in HTPS, Korba and HBHPS, Machadoli .

8. The petitioner has also prayed for extension of time for implementation of RGMO in the HTPS, Korba. We direct the petitioner to expedite and make all-out efforts for implementation of RGMO in the units of generating stations. We further direct the petitioner to ensure that the thermal generating units are put on FGMO with manual intervention for RGMO with immediate effect, till such time RGMO is implemented. The petitioner is further directed to set the droop between 3-6% in terms of the Grid Code.

9. With regard to renovation and modernization of HBHPS, the petitioner is directed to specify within four weeks, the time line for undertaking the renovation work and ensure that the HBHPS is put on FGMO with manual intervention for RGMO with immediate effect, till such time that the renovation work is completed.

10. Petition No. 137/MP/2012 is disposed of in terms of the above.

Sd/-
(M.DEENA DAYALAN)
MEMBER

sd/-
(V.S.VERMA)
MEMBER

sd/-
(S.JAYARAMAN)
MEMBER

sd/-
(Dr. PRAMOD DEO)
CHAIRPERSON

